

1 1. An aqueous caustic silica solution for treating a contaminated starting material
2 having mineral elements and charged ions, said mineral elements and charged ions
3 being solvated, chelated, or complexed in a structural arrangement, said aqueous
4 caustic silica solution comprising:

5 an admixture of silica and at least one compound selected from the group
6 consisting of sodium hydroxide, potassium hydroxide, and ammonium hydroxide in
7 water;

8 said aqueous caustic silica solution comprising from about 0.5% to about 5% w/w
9 dissolved silica and about from 5% to about 60% w/w of a hydroxide component; and

10 said aqueous caustic silica solution adapted to contact said starting material to
11 effect breaking apart said structured arrangement and adapted to, subsequently,
12 release said mineral elements and said charged ions from said structured arrangement,
13 and further adapted to solubilize said released mineral elements and said charged ions
14 and to sustain said solubility thereof.

15 2. The aqueous caustic silica solution according to claim 1, wherein said hydroxide
16 component comprises at least one compound selected from the group consisting of
17 sodium hydroxide, potassium hydroxide, and ammonium hydroxide.

18 3. The aqueous caustic silica solution according to claim 1, wherein said hydroxide
19 component comprises from about 5% to about 25% w/w sodium hydroxide.

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